Time Remaining: 44/45 (Minutes)

Q.1   Test 4 Circular Motion   Physics Unit Wise

A stone tied with a string, is rotated in a vertical circle. The minimum speed with which the string has to be rotated

A) Is independent of the mass of the stone

B) Is independent of the length of the string

C) Decreases with increasing mass of the stone

D) Decreases with increasing in length of the string

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Correct Answer:

A   B   C   D

Next

Q.2 Test 4 Circular Motion Physics Unit Wise

If the body is moving in a circle of radius r with a constant speed v, its angular velocity is

A) v^2/r

B) vr

C) v/r

D) r/v

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Correct Answer:

A B C D

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Q.3 Test 4 Circular Motion Physics Unit Wise

A motor cyclist going round in a circular track at constant speed has

A) Constant linear velocity
B) Constant acceleration
C) Constant angular velocity
D) Constant force

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Correct Answer:

A   B   C   D

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Q.4   Test 4 Circular Motion   Physics Unit Wise

The ratio of angular speeds of minute hand and hour hand of a watch is

A) 1 : 12   B) 6 : 1

C) 12 : 1   D) 1 : 6

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Correct Answer:

○ A   ○ B   ○ C   ○ D

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Q.5   Test 4 Circular Motion   Physics Unit Wise

A body is moving along a circular path with variable speed. It has

A) a radial acceleration
B) zero acceleration
C) a tangential acceleration
D) both tangential and radial accelerations

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Correct Answer:

A   B   C   D

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Q.6   Test 4 Circular Motion   Physics Unit Wise

A particle is acted upon by a force of constant magnitude which is always perpendicular to the velocity of the particle. The motion takes place in a plane. It follows that

A) its velocity is constant

B) its motion is linear

C) its acceleration is constant

D) its motion is circular

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Correct Answer:

A   B   C   D

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Q.7   **Test 4 Circular Motion**   **Physics Unit Wise**

A particle moving in a circle of radius 25 cm at 2 revolutions per second. The acceleration of the particle is S.I. unit is

A) $4\pi^2$

B) $2\pi^2$

C) $3\pi^2$

D) π^2

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Correct Answer:

○ A   ○ B   ○ C   ○ D

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Q.8 Test 4 Circular Motion Physics Unit Wise

A particle is moving along a circular path. Let v, ω, α and ac be its linear velocity, angular velocity, angular acceleration and centripetal acceleration respectively. Which is the wrong statement from the followings?

A) $\omega \perp v$

B) $\omega \perp \alpha$

C) $\omega \perp a_c$

D) $v \perp a_c$

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Correct Answer:

○ A ○ B ○ C ○ D

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Q.9   **Test 4 Circular Motion**   **Physics Unit Wise**

A wheel rotates with a constant angular velocity of 600 r.p.m. What is the angle through which the wheel rotates in one second?

A) 5π radian   B) 15π radian

C) 20π radian   D) 10π radian

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Correct Answer:

○ A   ○ B   ○ C   ○ D

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Q.10   Test 4 Circular Motion   Physics Unit Wise

Angular velocity of an hour hand of a watch

A) $\frac{\pi}{43200}$ rad/s   B) $\frac{\pi}{30}$ rad/s

C) $\frac{\pi}{21600}$ rad/s   D) $\frac{\pi}{1800}$ rad/s

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Correct Answer:

A   B   C   D

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Q.11   Test 4 Circular Motion   Physics Unit Wise

Centripetal force in vector form can be expressed as

A) $\vec{F} = \dfrac{mv^2}{r}$

B) $\vec{F} = -m\omega^2 \vec{r}$

C) $\vec{F} = \dfrac{mv^2}{r}\vec{r}$

D) $\vec{F} = \dfrac{mv^2}{r}\vec{r}$

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Correct Answer:

○ A   ● B   ● C   ● D

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Q.12   Test 4 Circular Motion   Physics Unit Wise

If a particle moves with uniform speed that its tangential acceleration will be

A) zero   B) infinite
C) constant   D) none of these

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Correct Answer:

○ A   ○ B   ○ C   ○ D

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Q.13 Test 4 Circular Motion   Physics Unit Wise

If a body of mass m is rotating in a circle of radius r with frequency of rotation "f" then centripetal force acting on it is

A) $2\pi mrf$

B) $4\pi^2 2mrf^2$

C) $4\pi^2 mrf$

D) $\pi^2 mrf^2$

Click Here if Image Doesn't Load

Correct Answer:

A   B   C   D

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Q.14 Test 4 Circular Motion Physics Unit Wise

A body is rotating in circle of radius r. Keeping period of rotation constant but radius is doubled (2r) then centripetal force become

A) Half
C) Same

B) Double
D) Four times

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Correct Answer:

○ A ○ B ○ C ○ D

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Time Remaining: 43/45 (Minutes)

Q.15   Test 4 Circular Motion   Physics Unit Wise

The relation between the linear velocity and angular velocity is.

A) $\omega = r \times v$

B) $v = \omega \times r$

C) $v = r \times \omega$

D) $\omega = v \times r$

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Correct Answer:

○ A   ○ B   ○ C   ○ D

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Q.16 Test 4 Circular Motion Physics Unit Wise

The angle subtended by an arc equal to radius is

A) 1 rad B) 1 Revolution
C) One degree D) All

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Correct Answer:

○ A ○ B ○ C ○ D

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Q.17   Test 4 Circular Motion   Physics Unit Wise

If we whirl a stone at the end of a string in the vertical circle, it is likely to break when the stone is

A) At the highest point

B) At any point during motion

C) At the lowest point

D) At the point where gravity is not acting

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Correct Answer:

A   B   C   D

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Q.18   Test 4 Circular Motion   Physics Unit Wise

When a body is whirled in a horizontal circle by means of a string the centripetal force is supplied by

A) Mass of a body
B) Tension in the string
C) Velocity of body
D) Centripetal acceleration

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Correct Answer:

○ A   ○ B   ○ C   ○ D

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Q.19   **Test 4 Circular Motion**   **Physics Unit Wise**

The angular velocity of a particle rotating in a circular orbit 100 times per minute is

A) 1.66 rad/s   B) 10.47 rad/s
C) 10.47 deg/s   D) 60 deg/s

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Correct Answer:

A   B   C   D

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Q.20   Test 4 Circular Motion   Physics Unit Wise

An object is moving in a circle of radius 100 m with a constant speed of 31.4 m/s. What is its average speed for one complete revolution?

A) Zero   B) 31.4 m/s

C) 3.14 m/s   D) $\sqrt{2} \times 31.4$ m/s

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Correct Answer:

○ A   ○ B   ○ C   ○ D

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Q.21   Test 4 Circular Motion   Physics Unit Wise

A motor cyclist going around in a circular track at constant speed

A) Constant linear velocity
B) Constant acceleration
C) Constant angular velocity
D) Constant force

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Correct Answer:

○ A   ● B   ● C   ● D

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Q.22   **Test 4 Circular Motion**   **Physics Unit Wise**

A 0.5 kg ball moves in a circle of radius 0.4 m with a velocity of 4 ms^{-1}. The centripetal force on the ball is

A) 10 N   B) 20 N

C) 40 N   D) 80 N

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Correct Answer:

○ A   ○ B   ○ C   ○ D

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Q.23   Test 4 Circular Motion   Physics Unit Wise

The acceleration of a car is $8\,ms^{-2}$ of diameter of wheel is 2m its angular acceleration will be

A) 16 rad s^{-2} B) 8 rad s^{-2}

C) 4 rad s^{-2} D) 10 rad s^{-2}

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Correct Answer:

A   B   C   D

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Q.24   Test 4 Circular Motion   Physics Unit Wise

If a car moves with uniform speed of 2m/s in a circle of radius 0.4 m. It's angular speed is

A) 4 rad/s   B) 6 rad/s
C) 5 rad/s   D) 7 rad/s

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Correct Answer:

A   B   C   D

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Q.25   Test 4 Circular Motion   Physics Unit Wise

A fly wheel rotates at a constant speed of 3000rpm. The angle described by the shaft in radian   in one second is:

A) 3000π B) 100π

C) 50π D) 2π

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Correct Answer:

A   B   C   D

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Q.26 Test 4 Circular Motion Physics Unit Wise

The angular speed of hour's hand of mechanical watch is $radh^{-1}$

A) $\frac{\pi}{2}$

B) $\frac{\pi}{3}$

C) $\frac{\pi}{6}$

D) $\frac{\pi}{12}$

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Correct Answer:

○ A ● B ○ C ○ D

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Q.27 **Test 4 Circular Motion** **Physics Unit Wise**

If the tangential and centripetal accelerations are tangents and along the centre, respectively, then the resultant acceleration (a) will be

A) $a = a_t + a_c$

B) $a = a_t - a_c$

C) $a = \sqrt{a_t^2 + a_c^2}$

D) $a = a_c - a_t$

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Correct Answer:

A B C D

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Q.28 Test 4 Circular Motion Physics Unit Wise

A string can withstand a tension of 25N. What is the greatest speed at which a body of mass 1 kg can be whirled in a horizontal circle using 1 m length of the string?

A) $10\,ms^{-1}$

B) $5\,ms^{-1}$

C) $7.5\,ms^{-1}$

D) $2.5\,ms^{-1}$

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Correct Answer:

○ A ● B ○ C ○ D

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Q.29 Test 4 Circular Motion Physics Unit Wise

A stone is whirled in a vertical plane. The stone has

A) radial acceleration only
B) both radial and tangential accelerations
C) tangential acceleration only
D) neither radial nor tangential acceleration

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Correct Answer:

A B C D

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Q.30 Test 4 Circular Motion Physics Unit Wise

If a body of mass m is rotating in a circle of radius r with frequency of rotation "f" then centripetal force acting on it is

A) $2\pi mrf$

B) $4\pi^2 mrf^2$

C) $4\pi^2 2mrf$

D) $\pi^2 mrf^2$

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Correct Answer:

○ A ○ B ○ C ○ D

Submit Quiz

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Attempt Details
Date: 09/22/2021 11:17:08

This is a Unitwise Test | Images will be shown in class during discussion.

Total Marks: 0/30

Skipped Questions Details

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1 ✕ Correct Answer: A

2 ✕ Correct Answer: A

3 ✕ Correct Answer: C

4 ✕ Correct Answer: C

5 ✕ Correct Answer: D

6 ✕ Correct Answer: D

7 ✕ Correct Answer: A

8 ✕ Correct Answer: A

9 ✕ Correct Answer: C

10 ✕ Correct Answer: C

11 ✕ Correct Answer: C

12 ✕ Correct Answer: A

13 ✕ Correct Answer: B

14 ✕ Correct Answer: A

15 ✕ Correct Answer: B

16 ✕ Correct Answer: A

17 ✕ Correct Answer: C

18 ✕ Correct Answer: B

8 ✕ Correct Answer: A

9 ✕ Correct Answer: C

10 ✕ Correct Answer: C

11 ✕ Correct Answer: C

12 ✕ Correct Answer: A

13 ✕ Correct Answer: B

14 ✕ Correct Answer: A

15 ✕ Correct Answer: B

16 ✕ Correct Answer: A

17 ✕ Correct Answer: C

18 ✕ Correct Answer: B

19 ✕ Correct Answer: B

20 ✕ Correct Answer: B

21 ✕ Correct Answer: C

22 ✕ Correct Answer: B

23 ✕ Correct Answer: B

24 ✕ Correct Answer: C

25 ✕ Correct Answer: B

26 ✕ Correct Answer: C

27 ✕ Correct Answer: C

28 ✕ Correct Answer: B

29 ✕ Correct Answer: B

30 ✕ Correct Answer: B